



# COVID-19 Pandemic—Medical Education Adaptations: the Power of Students, Staff and Technology

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## Abstract

The coronavirus pandemic has profoundly changed the way medical education is delivered globally. Our group reports an insight into the adaptations and innovations made by the School of Medicine at Anglia Ruskin University.

**Keywords** COVID-19 · Undergraduate education · Medical school

The medical school at Anglia Ruskin University admitted its first students two years ago, promising an integrated, systems-based curriculum with early clinical contact. Amidst finding our feet as one of the United Kingdom's (UK) newest medical education providers, we have had to adapt rapidly to the healthcare crisis brought on by the COVID-19 pandemic, which has impacted every aspect of our educational provision. Our two cohorts consist of 100 students in each year group. Our biggest problem was prohibition of face-to-face contact with students. This has moved our classroom wholly into the virtual world and fostered innovation across our educational delivery. Prior to the pandemic, we had little active online learning where students and faculty interacted. Virtually all online content was supplementary material, amounting to less than one hour per week and accounted for less than 5% of the curriculum. The University had offered online counselling slots and personal development tutorials. In this article, we describe the power of our students, staff and technology in tackling the challenges of the COVID-19 pandemic at our institution.

One of the greatest facilitators of innovation during the COVID-19 pandemic was the rapid co-development and sharing of online resources between UK medical schools. This included Capsule<sup>1</sup> (developed by Brighton and Sussex Medical School) and Speaking Clinically<sup>2</sup> (Bristol Medical School). Resources were also made available by Health Education England (e-Learning for Healthcare Hub)<sup>3</sup> and several of the medical Royal Colleges. The sharing was supported by a spontaneous national collaborative effort coordinated and rapidly disseminated by the national academic mailing list service, JiscMail.<sup>4</sup> The JiscMail was coordinated by the Medical Schools Council<sup>5</sup> and provided connection between all UK medical schools. It ensured immediacy to the dissemination and resulted in rapid mobilisation of the resources.

At the local level, innovation emerged for a variety of reasons. Faculty members were fully empowered to develop lessons based on their own interpretation of educational principles, rather than any top-down directive. This was in stark contrast to the norm of educators having to conform to a predetermined teaching format (e.g. large group lecture, laboratory-based skill). The minimum specification was to place standard learning resources on a learning management platform (Canvas) with an annotated presentation (Microsoft

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<sup>1</sup> Brighton and Sussex Medical School and Ocasta. URL: [www.capsule.ac.uk](http://www.capsule.ac.uk) [accessed 09/07/2020]

<sup>2</sup> Levy A. Bristol Medical Pro Ltd. URL: <https://speakingclinically.co.uk/> [accessed 09/07/2020]

<sup>3</sup> Health Education England. URL: <https://www.e-lfh.org.uk/> [accessed 09/07/2020]

<sup>4</sup> JiscMail. URL: <https://www.jiscmail.ac.uk/> [accessed 09/07/2020]

<sup>5</sup> Medical Schools Council. URL: <https://www.medschools.ac.uk/> [accessed 09/07/2020]

PowerPoint); beyond this staff were able to teach creatively. Institutional subscriptions to web conferencing platforms facilitated connectivity among students and staff. We invested in Zoom, BigBlueButton and Microsoft teams to support online meetings and teaching activity. There was expansion of clinical staff members, who paradoxically had increased availability to teach. A move to more asynchronous delivery allowed clinical staff to contribute at a time suitable to them. Our usual student to staff ratio is 12:1. We appointed new clinical associate lecturers to cope with the demand of producing more online content quickly, pushing the ratio down to 10:1.

Short-loop feedback encouraged students to express their learning preferences at the end of every lesson. This allowed staff to refine delivery of future teaching. It quickly became apparent that the students preferred variety of presentation: podcasts, webinars, narrated presentations, synchronous small-group tutorials, asynchronous formative assessments combined with later synchronous large group feedback. With synchronous lesson delivery, it quickly became apparent that smaller groups were more interactive—students felt that their voices were lost if there were more than around 25 interacting participants. The chat function empowered normally reticent students to ask questions within the class. It was also important to keep lesson length to under 40 minutes, while podcasts and narrations worked best at up to 20-minute lessons. Some representative quotations from students are as follows: “It was comforting to have a weekly report with the head of year—answering our questions, and communicating any changes to the curriculum”; “Pathology, anatomy and the medicine themes have been delivered well and I feel the lecturers have aimed to deliver a variety of teaching methods to aid learning”; “Often if I had questions I would need them answered straight away and sometimes the discussion boards took too long”.

Feedback from faculty revealed that they felt empowered to use their creative skills in developing material. They quickly learned what worked and what did not from instant student feedback. There was intense collaboration between academic faculty to share ideas and solutions. Faculty were forced to adopt unfamiliar technologies, but quickly became proficient in them. Overall, the positives of successful delivery outweighed the negatives of stress and time pressures. Some representative quotations from faculty are as follows: “Now the students have gotten used to the concept, I find that students are actually more interactive over Zoom than in face-to-face sessions”; “COVID-19 has unfrozen all the usual educational preconceptions. It will hopefully allow us reset into something more creative rather than return to the usual.”

Teaching clinical skills has been the greatest challenge since acquisition of psychomotor skills requires hands-on practice. We feel it is the main reason that pre-clinical medicine can never satisfactorily be delivered as an online course. Laboratory work (anatomy, physiology, microbiology and biochemistry labs) was also abandoned. This was replaced by signposting students to online resources, such as YouTube videos, as an interim solution. We have developed a strategy to catch up on these skills once the physical restrictions on teaching are lifted. Another challenge was security and invigilation of summative examinations. Secure question banks are easily copied and saved by examinees, putting these questions in the public domain. There is an ongoing debate about what is the best way to deliver online examinations (e.g. with or without proctoring). We elected to use timed, non-invigilated examinations. The issue common to any of the methods used is student unfamiliarity since this was their first exposure to this modality.

Our students have demonstrated resolve, resilience and flexibility during this crisis. Our imaginative, committed and creative faculty has been the cornerstone of the medical school response. We have fully embraced the power of technology to continue providing medical education in this time of crisis. The speed and scale of this change have been breath-taking. This pandemic is testing the strengths and limits of an online education; it begets the natural question: how much of this can and should be retained once the pandemic passes?

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